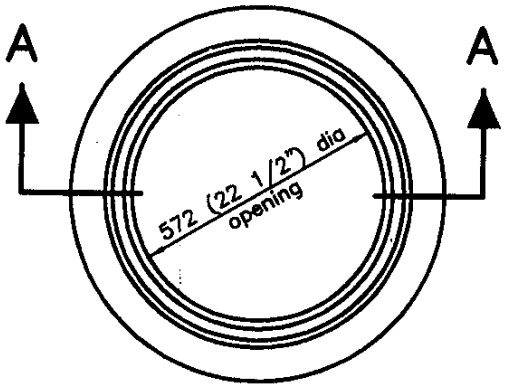
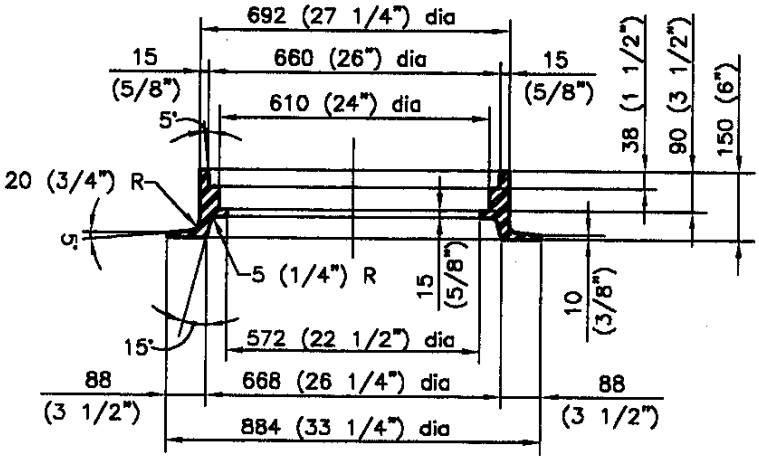
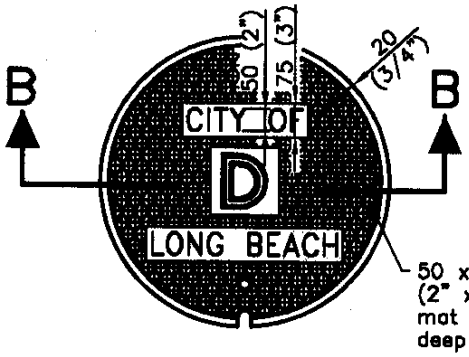


PLAN VIEW

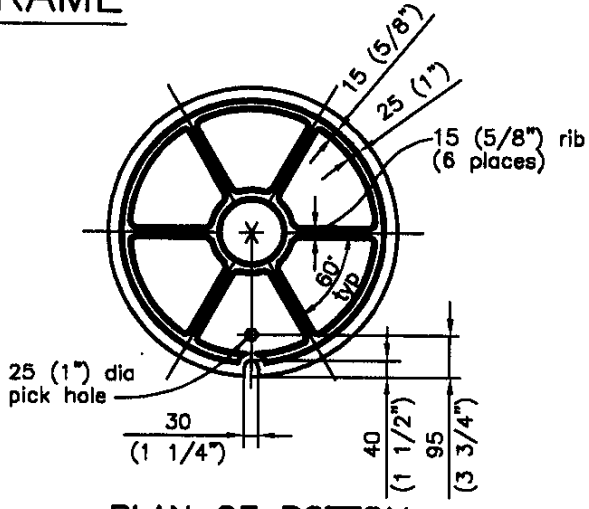


SECTION A–A

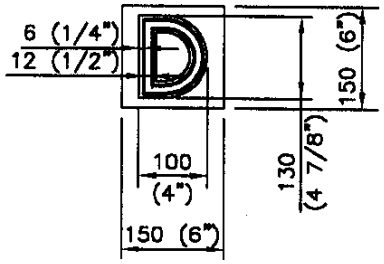
MANHOLE FRAME



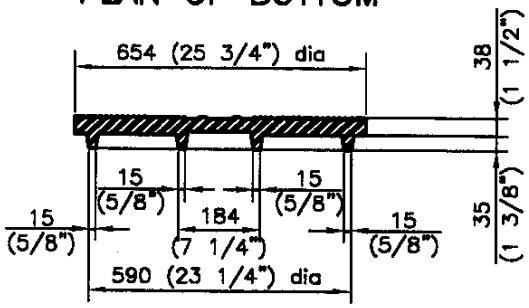
PLAN OF TOP
FOR STORM DRAIN COVER



PLAN OF BOTTOM



PLAN OF LETTER



SECTION B–B

MANHOLE COVER

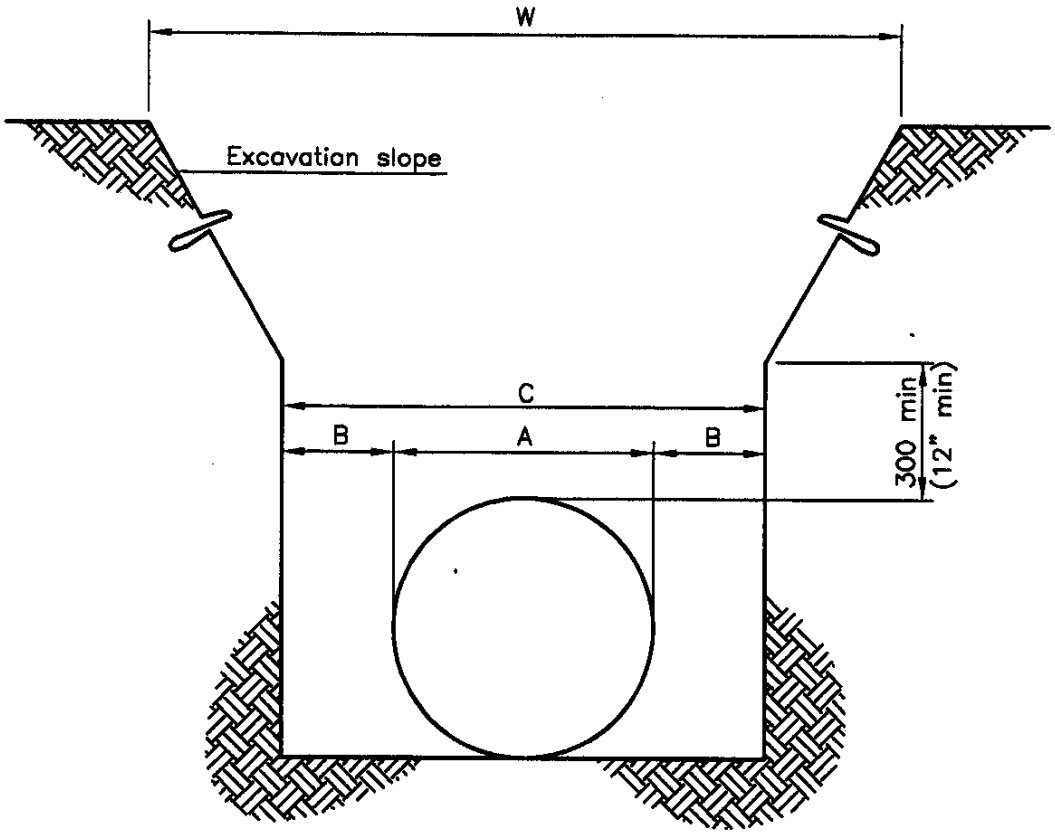
Dimensions are in millimeters, except as noted

REVISIONS		CITY OF LONG BEACH, CALIFORNIA	STANDARD PLAN NO.
NO.	DATE	DEPARTMENT OF PUBLIC WORKS	
1	12/26/97	**MANHOLE FRAME AND COVER**	METRIC **616**
2	12/23/02		
3		APPROVED BY: Mark Christoffels CITY ENGINEER R.E. No. 40599 DATE: 1/10/03 EX. DATE 03/31/03	SHEET 1 OF 2
4			

1. The cast iron used shall conform with ASTM A–48 Class 35B.
2. The frame and cover shall be coated with asphaltum or bituminous paint after testing and inspection.
3. All letters shall be flush with the finished surface of the cover.
4. Foundry indentifying mark, heat and date shall be cast on the bottom of the cover and on the inside of the frame.
5. Imported covers and frames shall have the country of origin marking in compliance with Federal Regulations.
6. Weight of frame shall be 120 kg (260 pounds). Weight of cover shall be 80 kg (175 pounds). Actual weights shall be within a range of 95% to 110%.
7. The manhole frame and cover shall be inspected by the engineer prior to shipment to the job site. Acceptance will be indicated by the agency's mark.
8. The Proof–Load for Test Method B of the Standard Specifications is 180 kN (40,700 pounds).
9. Covers for manholes located in easements, alleys, parkways and all other places except paved streets shall be provided with socket set screw locking devices. Drill and tap two holes to a depth of 25 mm (1") at 90 degrees to pick hole and install 20 mm dia x 20 mm long (3/4" x 3/4") stainless steel socket set screws with 10 mm (3/8") recessed hex head. All threads shall be N.C.

Dimensions are in millimeters, except as noted

REVISIONS		CITY OF LONG BEACH, CALIFORNIA DEPARTMENT OF PUBLIC WORKS	STANDARD PLAN NO.
NO.	DATE		
1	12/26/97		
2	12/23/02	**MANHOLE FRAME AND COVER**	METRIC **616**
3			
4		APPROVED BY: _____ CITY ENGINEER R.E. No. 40599 DATE: 1/10/03 EX. DATE 03/31/03	SHEET 2 OF 2



A = Outside diameter of conduit

B = 150 mm (6") min, 250 mm (10") max

C = Width of trench at top of conduit

C max = A + 500 mm (20")

TABLE OF MAXIMUM EXCAVATION WIDTHS	
Conduit Size (O.D. or Largest External Horizontal Diameter)	W
750 mm (30") or less	600 mm (24") + O.D.
Larger than 750 mm (30") to 1400 mm (56")	750 mm (30") + O.D.
Larger than 1400 mm (56") to 1950 mm (78")	900 mm (36") + O.D.
Larger than 1950 mm (78")	1200 mm (48") + O.D.

TRENCH WIDTH REQUIREMENTS

Dimensions are in millimeters, except as noted

REVISIONS NO.	DATE
1	01/02/98
2	12/23/02
3	
4	

CITY OF LONG BEACH, CALIFORNIA
DEPARTMENT OF PUBLIC WORKS

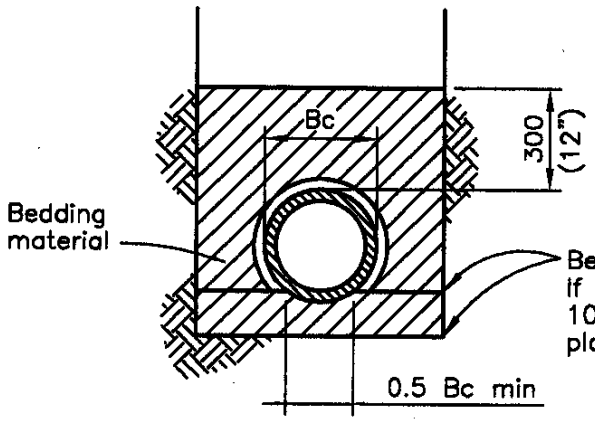
TRENCH WIDTH AND BEDDING REQUIREMENTS

APPROVED BY: Mark Christoffels
CITY ENGINEER R.E. NO. 40599

DATE: 1/10/03
EX. DATE 03/31/03

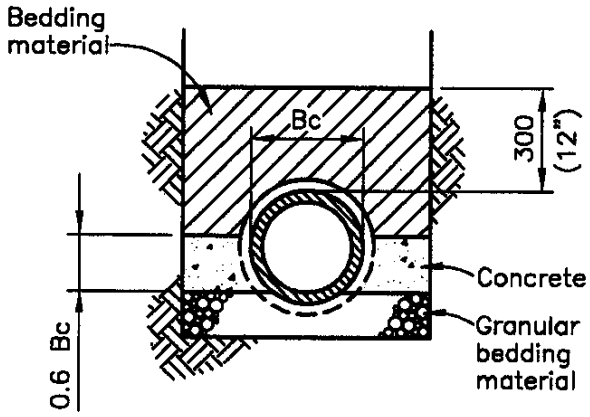
STANDARD PLAN NO.
METRIC
634

SHEET
1 OF 3

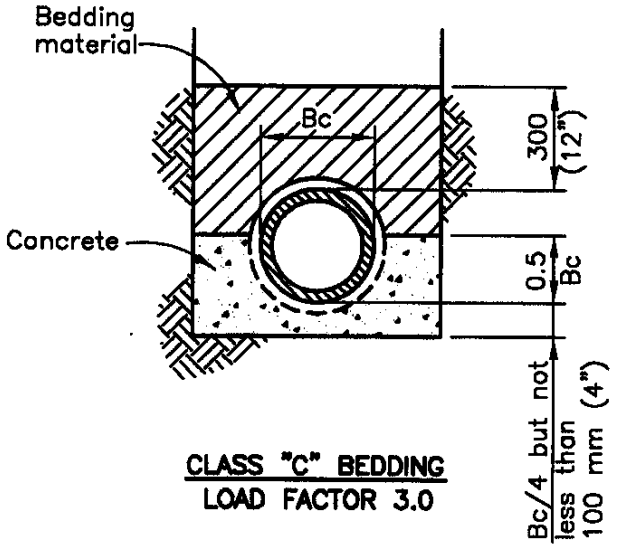


Bedding below bottom of pipe not required. If trench is over-excavated, a minimum of 100 mm (4") of bedding material shall be placed on native soil under the pipe

CLASS "A" BEDDING
LOAD FACTOR 1.5



CLASS "B" BEDDING
LOAD FACTOR 2.5



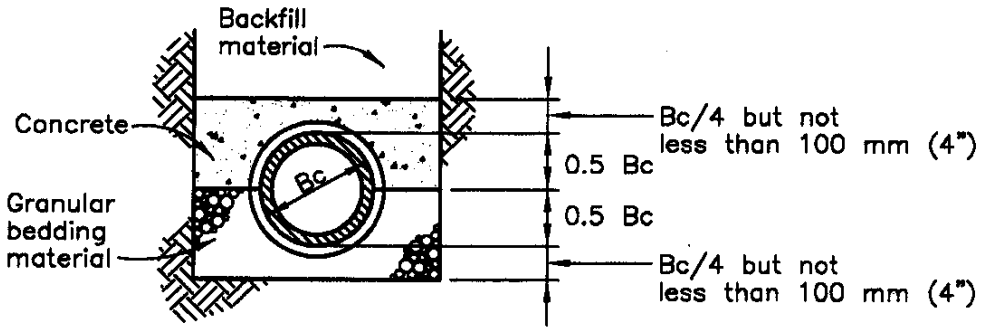
CLASS "C" BEDDING
LOAD FACTOR 3.0

NOTES:

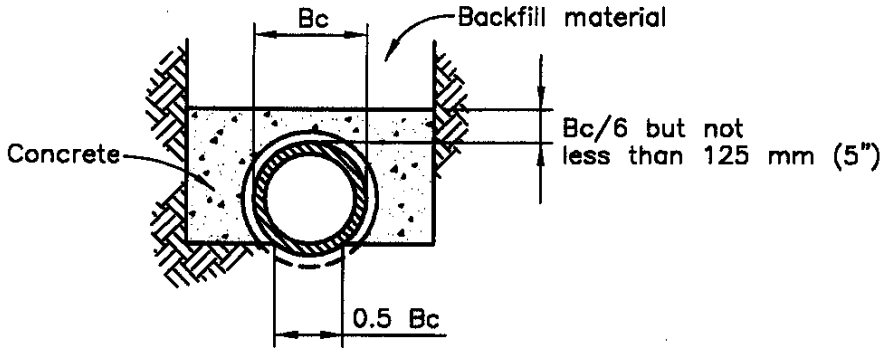
1. Class "A" Bedding shall be used, unless otherwise noted on project plans.
2. Bedding material shall conform to Subsection 306-1.2.1 of the Standard Specifications.
3. When concrete bedding is used, pipe shall be securely anchored at each joint to prevent pipe from floating.

Dimensions are in millimeters, except as noted

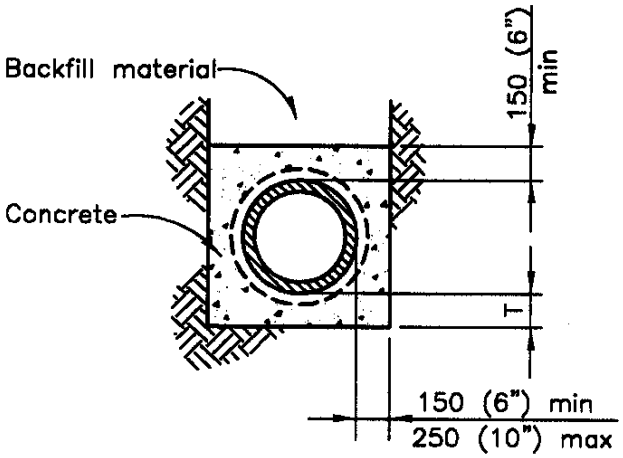
REVISIONS		CITY OF LONG BEACH, CALIFORNIA	STANDARD PLAN NO.
NO.	DATE	DEPARTMENT OF PUBLIC WORKS	
1	01/02/98	TRENCH WIDTH AND BEDDING REQUIREMENTS	METRIC 634
2	12/23/02		
3		APPROVED BY: Mark Christoffels CITY ENGINEER R.E. No. 40599 DATE: 1/10/03 EX. DATE 03/31/03	SHEET 2 OF 3
4			



CLASS "D" BEDDING
LOAD FACTOR 3.2
(To be used only when severe ground water conditions occur)



CLASS "E" BEDDING
LOAD FACTOR 3.2



CLASS "F" BEDDING
LOAD FACTOR 4.5

TABLE OF T DIMENSIONS	
PIPE SIZE (I.D.)	T
150 – 600 mm (6" – 24")	150 mm (6")
675 – 825 mm (27" – 33")	200 mm (8")
900 – 975 mm (36" – 39")	225 mm (9")
1050 – 1500 mm (42" – 60")	250 mm (10")

Dimensions are in millimeters, except as noted

REVISIONS NO.	DATE
1	01/02/98
2	12/23/02
3	
4	

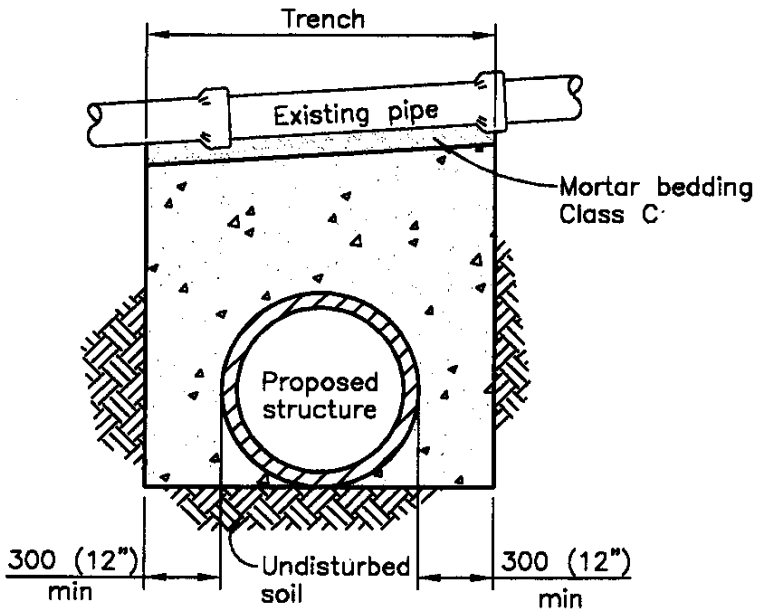
CITY OF LONG BEACH, CALIFORNIA
DEPARTMENT OF PUBLIC WORKS

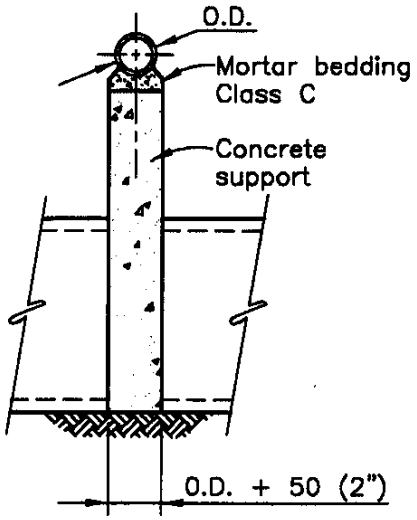
TRENCH WIDTH AND BEDDING REQUIREMENTS

APPROVED BY: Mark Christoffels
CITY ENGINEER R.E. No. 29599
DATE: 1/10/03
EX. DATE 03/31/03

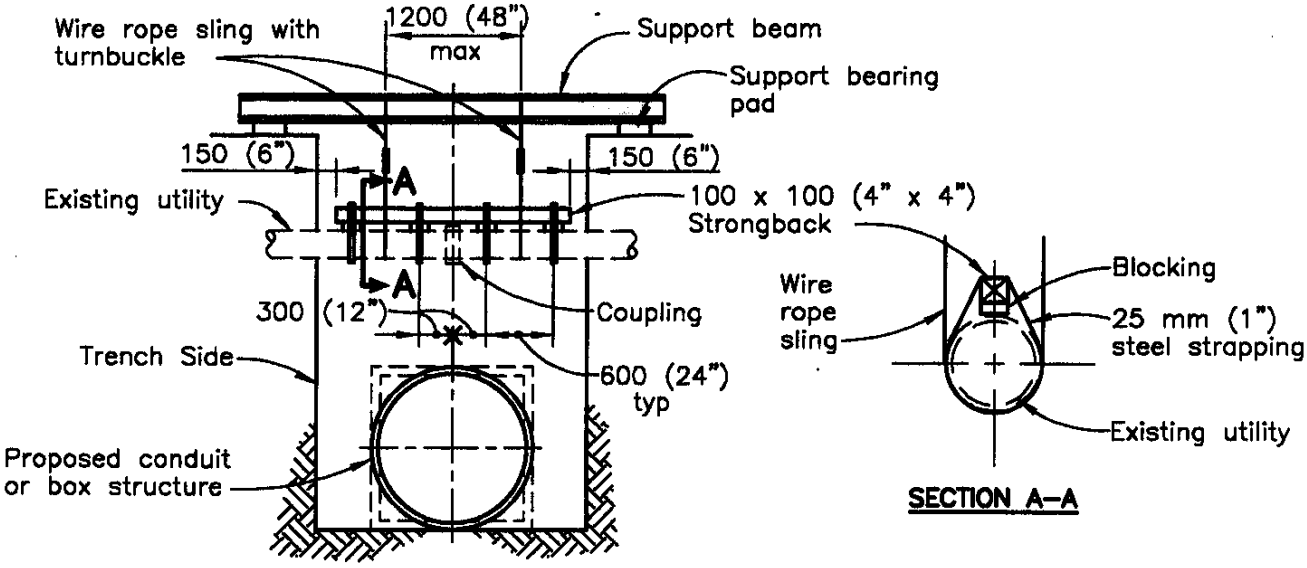
STANDARD PLAN NO.
METRIC
634

SHEET
3 OF 3





PERMANENT WALL SUPPORT



SECTION A–A

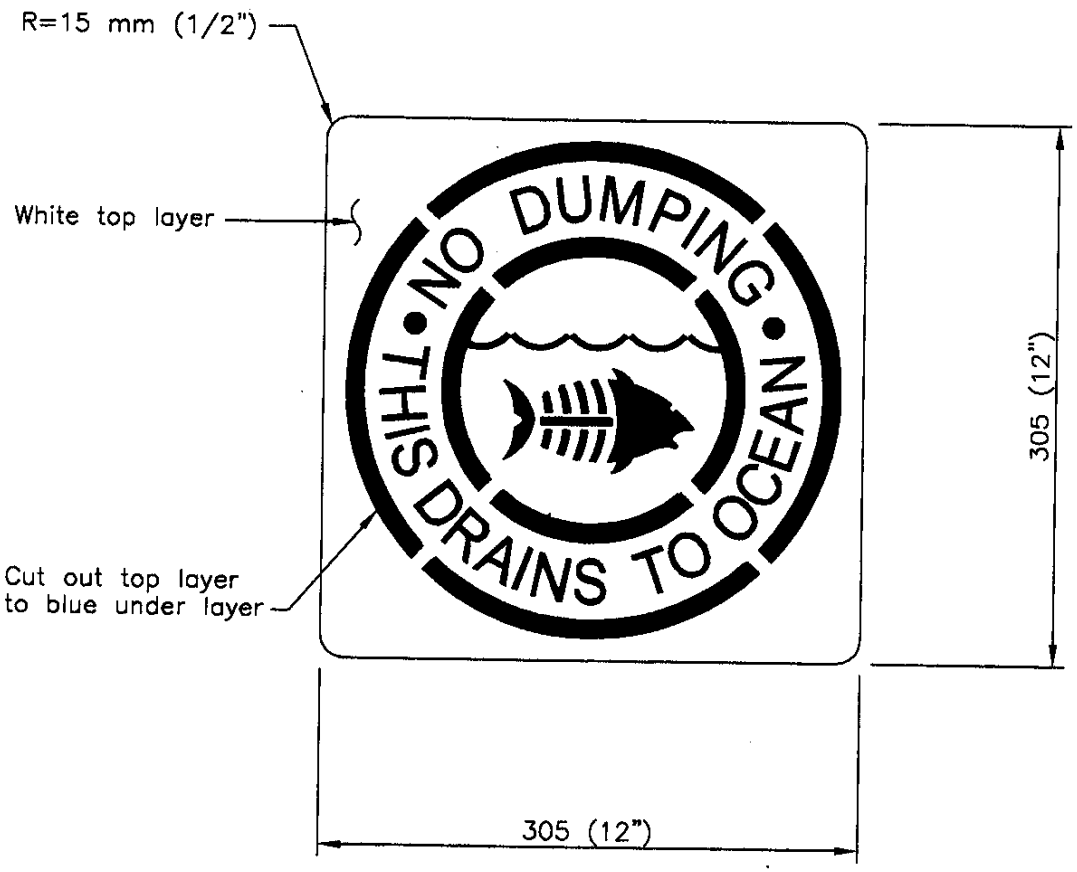
TEMPORARY PIPE SUPPORT ACROSS TRENCHES

NOTES:

1. Permanent pipe support shall be constructed under all existing concrete, asbestos cement and clay pipes and under other pipelines where required by the Engineer.
2. Other pipe support methods (for example, reinforced concrete beams) may be approved by the Engineer.
3. Strong back beams may be deleted from temporary supports for iron or steel pipes if approved by the Engineer.
4. If more than one pipe coupling is exposed, the Contractor shall submit details of proposed lateral restraint for approval.

Dimensions are in millimeters, except as noted.

REVISIONS NO.	DATE	CITY OF LONG BEACH, CALIFORNIA DEPARTMENT OF PUBLIC WORKS	STANDARD PLAN NO.
1	01/02/98	PIPE SUPPORT ACROSS TRENCHES	METRIC 635
2	12/23/02		
3		APPROVED BY: Mark Christoffels CITY ENGINEER R.E. No. 50599 DATE: 1/10/03 EX. DATE 03/31/03	SHEET 1 OF 1
4			



Notes:

1. Stencil material shall be two–layer resilient thermoplastic with 30% graded glass beads, 3.15 mm (125 mils) total thickness with beveled edges. Material shall be AASHTO designated M249–79(86), except that material shall be pre–formed.

2. Before application, prepare P.C.C. surfaces with a primer sealer. Apply stencils with propane torch heating, per manufacturer's recommendations.

3. Other graphic designs than that shown above are subject to approval. Submit full–size drawings and material samples to the City Engineer before application.

4. For new catch basins, stamp design into fresh concrete with tool loaned by the City of Long Beach, Public Service Bureau, Phone (562) 570–2700.

Dimensions are in millimeters, except as noted

REVISIONS		CITY OF LONG BEACH, CALIFORNIA DEPARTMENT OF PUBLIC WORKS	STANDARD PLAN NO.
NO.	DATE		
1	12/23/02	CATCH BASIN STENCIL	METRIC 636
2	02/28/03		
3		APPROVED BY: _____ DATE: 4/16/03 CITY ENGINEER R.E. No. 40599 EX. DATE 03/31/07	SHEET 1 OF 1
4			